



Skill Set Alignment IT Essentials I: PC Hardware and Software

This document lists the skills that students learn in the IT Essentials I: PC Hardware and Software course. This course prepares students for the CompTIA A+ certification. Employers, Academies, and students may use this document to communicate current knowledge, or to identify skills demonstrated at a work setting. Another valuable use of this information is as a list of proficiencies expected through work experience.

Name of Business/Employer

Name of Student

Street Address

Street Address

City State Zip

City State Zip

Phone

Phone

Employment Supervisor's Name and Position

Skill Set - IT Essentials I

Installation, Configuration, and Upgrading Hardware

- Identify basic terms, concepts, and functions of system modules, including how each module should work during normal operation and during the boot process
- Identify basic procedures for adding and removing field replaceable modules for both desktop and portable systems
- Identify available IRQs, DMAs, and I/O addresses and procedures for device installation and configuration
- Identify common peripheral ports, associated cabling and their connectors
- Identify proper procedures for installing and configuring IDE/EIDE devices
- Identify proper procedures for installing and configuring SCSI devices
- Identify proper procedures for installing and configuring peripheral devices
- Identify hardware methods of upgrading system performance, procedures for replacing basic subsystem components, unique components and when to use them

Diagnosing and Troubleshooting Hardware

- Identify common symptoms and problems associated with each module and how to troubleshoot and isolate the problems
- Identify basic troubleshooting procedures and how to elicit problem symptoms from customers

Preventive Maintenance

- Identify the purpose of various types of preventive maintenance products and procedures and when to use them

- Identify issues, procedures and devices for protection within the computing environment, including people, hardware and the surrounding workspace

Motherboard, Processors, and Memory

- Distinguish between the popular CPU chips in terms of their basic characteristics
- Identify the categories of RAM (Random Access Memory) terminology, their locations and physical characteristics
- Identify the most popular type of motherboards, their components and architecture (bus structures and power supplies)
- Identify the purpose of CMOS (Complementary Metal-Oxide Semiconductor), what it contains and how to change its basic parameters

Printers

- Identify basic concepts, printer operations and printer components
- Identify care and service techniques and common problems with primary printer types

Basic Networking

- Identify basic networking concepts, including how a network works and the ramifications of repairs on the network

Operating System Fundamentals

- Identify the major desktop components and interfaces, and their functions. Differentiate the characteristics of Windows 9x/ME, Windows NT 4.0 Workstation, Windows 2000 Professional, and Windows XP
- Identify the names, locations, purposes, and contents of major system files
- Demonstrate the ability to use command-line functions and utilities to manage the operating system, including the proper syntax and switches
- Identify basic concepts and procedures for creating, viewing, and managing disks, directories and files. This includes procedures for changing file attributes and the ramifications of those changes (for example, security issues).
- Identify the major operating system utilities, their purpose, location, and available switches.

Installation, Configuration and Upgrading Operating Systems

- Identify the procedures for installing Windows 9x/ME, Windows NT 4.0 Workstation, Windows 2000 Professional, and Windows XP, and bringing the operating system to a basic operational level
- Identify steps to perform an operating system upgrade from Windows 9.x/ME, Windows NT 4.0 Workstation, Windows 2000 Professional, and Windows XP. Given an upgrade scenario, choose the appropriate next steps.
- Identify the basic system boot sequences and boot methods, including the steps to create an emergency boot disk with utilities installed for Windows 9x/ME, Windows NT 4.0 Workstation, Windows 2000 Professional, and Windows XP
- Identify procedures for installing/adding a device, including loading, adding, and configuring device drivers, and required software
- Identify procedures necessary to optimize the operating system and major operating system subsystems

Diagnosing and Troubleshooting Operating Systems

- Recognize and interpret the meaning of common error codes and startup messages from the boot sequence, and identify steps to correct the problems
- Recognize when to use common diagnostic utilities and tools. Given a diagnostic scenario involving one of these utilities or tools, select the appropriate steps needed to resolve the problem
- Recognize common operational and usability problems and determine how to resolve them

Networks

- Identify the networking capabilities of Windows. Given configuration parameters, configure the operating system to connect to a network

- Identify the basic Internet protocols and terminologies. Identify procedures for establishing Internet connectivity. In a given scenario, configure the operating system to connect to and use Internet resources

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